SEVENTH APPROXIMATION
DATA FORM FOR CONVENTIONAL ASSESSMENT UNITS (Version 6, 9 April 2003)

IDENTIFICATION INFORMATION

Assessment Geologist:	L.O. Anna	Date:	16-Sep-08
Region:	North America	Number:	5
Province:	Williston Basin	Number:	5031
Total Petroleum System:	Winnipeg-Deadwood	Number:	503102
Assessment Unit:	Winnipeg-Deadwood	Number:	50310201
Based on Data as of:			
Notes from Assessor:			

CHARACTERISTICS OF ASSESSMENT UNIT

Oil (<20,000 cfg/bo overall) **or** Gas (≥20,000 cfg/bo overall): Gas

What is the minimum accumulation size? 0.5 mmboe grown
(the smallest accumulation that has potential to be added to reserves)

No. of discovered accumulations exceeding minimum size: Oil: 0 Gas: 4
Established (>13 accums.) _____ Frontier (1-13 accums.) X Hypothetical (no accums.) _____

Median size (grown) of discovered oil accumulations (mmbo):
1st 3rd _____ 2nd 3rd _____ 3rd 3rd _____
Median size (grown) of discovered gas accumulations (bcfg):
1st 3rd 29.9 2nd 3rd 21.4 3rd 3rd _____

Assessment-Unit Probabilities:

Attribute	Probability of occurrence (0-1.0)
1. **CHARGE:** Adequate petroleum charge for an undiscovered accum. ≥ minimum size:	1.0
2. **ROCKS:** Adequate reservoirs, traps, and seals for an undiscovered accum. ≥ minimum size:	1.0
3. **TIMING OF GEOLOGIC EVENTS:** Favorable timing for an undiscovered accum. ≥ minimum siz	1.0

Assessment-Unit GEOLOGIC Probability (Product of 1, 2, and 3): 1.0

UNDISCOVERED ACCUMULATIONS

No. of Undiscovered Accumulations: How many undiscovered accums. exist that are ≥ min. size?:
(uncertainty of fixed but unknown values)

Oil Accumulations:	minimum (>0)	1	mode	2	maximum	8
Gas Accumulations:	minimum (>0)	2	mode	6	maximum	15

Sizes of Undiscovered Accumulations: What are the sizes (**grown**) of the above accums?:
(variations in the sizes of undiscovered accumulations)

Oil in Oil Accumulations (mmbo):	minimum	0.5	median	1	maximum	10
Gas in Gas Accumulations (bcfg):	minimum	3	median	15	maximum	300

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AVERAGE RATIOS FOR UNDISCOVERED ACCUMS., TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Accumulations:	minimum	mode	maximum
Gas/oil ratio (cfg/bo)	1000	2000	4000
NGL/gas ratio (bngl/mmcfg)	11	22	44

Gas Accumulations:	minimum	mode	maximum
Liquids/gas ratio (bliq/mmcfg)	20	60	80
Oil/gas ratio (bo/mmcfg)			

SELECTED ANCILLARY DATA FOR UNDISCOVERED ACCUMULATIONS

(variations in the properties of undiscovered accumulations)

Oil Accumulations:	minimum	mode	maximum
API gravity (degrees)	25	40	55
Sulfur content of oil (%)	0	0.1	0.5
Depth (m) of water (if applicable)			

	minimum	F75	mode	F25	maximum
Drilling Depth (m)	3000		4200		5000

Gas Accumulations:	minimum	mode	maximum
Inert gas content (%)	0	10	15
CO_2 content (%)	0	5	10
Hydrogen-sulfide content (%)	0	0	0
Depth (m) of water (if applicable)			

	minimum	F75	mode	F25	maximum
Drilling Depth (m)	3500		4480		5280

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ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO STATES
Surface Allocations (uncertainty of a fixed value)

1. Montana		represents 36.33 area % of the AU		
Oil in Oil Accumulations:	minimum	mode	maximum	
Volume % in entity		15.00		
Gas in Gas Accumulations:				
Volume % in entity		5.00		
2. North Dakota		represents 63.67 area % of the AU		
Oil in Oil Accumulations:	minimum	mode	maximum	
Volume % in entity		85.00		
Gas in Gas Accumulations:				
Volume % in entity		95.00		
3.		represents ____ area % of the AU		
Oil in Oil Accumulations:	minimum	mode	maximum	
Volume % in entity				
Gas in Gas Accumulations:				
Volume % in entity				
4.		represents ____ area % of the AU		
Oil in Oil Accumulations:	minimum	mode	maximum	
Volume % in entity				
Gas in Gas Accumulations:				
Volume % in entity				
5.		represents ____ area % of the AU		
Oil in Oil Accumulations:	minimum	mode	maximum	
Volume % in entity				
Gas in Gas Accumulations:				
Volume % in entity				
6.		represents ____ area % of the AU		
Oil in Oil Accumulations:	minimum	mode	maximum	
Volume % in entity				
Gas in Gas Accumulations:				
Volume % in entity				

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7. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

8. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

9. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

10. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

11. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

12. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

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ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO LAND ENTITIES
Surface Allocations (uncertainty of a fixed value)

1. Federal Lands		represents 7.80 area % of the AU		
Oil in Oil Accumulations:	minimum	mode	maximum	
Volume % in entity		7.00		
Gas in Gas Accumulations:				
Volume % in entity		8.00		
2. Private Lands		represents 80.63 area % of the AU		
Oil in Oil Accumulations:	minimum	mode	maximum	
Volume % in entity		80.00		
Gas in Gas Accumulations:				
Volume % in entity		82.00		
3. Tribal Lands		represents 5.68 area % of the AU		
Oil in Oil Accumulations:	minimum	mode	maximum	
Volume % in entity		5.00		
Gas in Gas Accumulations:				
Volume % in entity		5.00		
4. Other Lands		represents 1.90 area % of the AU		
Oil in Oil Accumulations:	minimum	mode	maximum	
Volume % in entity		3.00		
Gas in Gas Accumulations:				
Volume % in entity		2.00		
5. MT State Lands		represents 2.51 area % of the AU		
Oil in Oil Accumulations:	minimum	mode	maximum	
Volume % in entity		3.00		
Gas in Gas Accumulations:				
Volume % in entity		1.00		
6. ND State Lands		represents 1.48 area % of the AU		
Oil in Oil Accumulations:	minimum	mode	maximum	
Volume % in entity		2.00		
Gas in Gas Accumulations:				
Volume % in entity		2.00		

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7. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

8. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

9. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

10. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

11. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

12. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

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ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO FEDERAL LAND SUBDIVISIONS
Surface Allocations (uncertainty of a fixed value)

1. Bureau of Land Management (BLM) represents 2.69 area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity		3.00	
Gas in Gas Accumulations: Volume % in entity		3.00	

2. BLM Wilderness Areas (BLMW) represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

3. BLM Roadless Areas (BLMR) represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

4. National Park Service (NPS) represents 0.23 area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity		0.00	
Gas in Gas Accumulations: Volume % in entity		0.00	

5. NPS Wilderness Areas (NPSW) represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

6. NPS Protected Withdrawals (NPSP) represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

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7. US Forest Service (FS) represents 3.32 area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity		3.00	
Gas in Gas Accumulations: Volume % in entity		4.00	

8. USFS Wilderness Areas (FSW) represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

9. USFS Roadless Areas (FSR) represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

10. USFS Protected Withdrawals (FSP) represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

11. US Fish and Wildlife Service (FWS) represents 1.07 area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity		1.00	
Gas in Gas Accumulations: Volume % in entity		1.00	

12. USFWS Wilderness Areas (FWSW) represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

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13. USFWS Protected Withdrawals (FWSP) represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

14. Wilderness Study Areas (WS) represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

15. Department of Energy (DOE) represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

16. Department of Defense (DOD) represents 0.47 area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity		0.00	
Gas in Gas Accumulations: Volume % in entity		0.00	

17. Bureau of Reclamation (BOR) represents 0.02 area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity		0.00	
Gas in Gas Accumulations: Volume % in entity		0.00	

18. Tennessee Valley Authority (TVA) represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

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19. Other Federal represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

20. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

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ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO ECOSYSTEMS
Surface Allocations (uncertainty of a fixed value)

1.	Northeastern Glaciated Plains (NEGP)	represents	12.38	area % of the AU	
Oil in Oil Accumulations:	minimum		mode		maximum
Volume % in entity			8.00		
Gas in Gas Accumulations:					
Volume % in entity			8.00		
2.	Northern Glaciated Plains (NGPL)	represents	34.50	area % of the AU	
Oil in Oil Accumulations:	minimum		mode		maximum
Volume % in entity			37.00		
Gas in Gas Accumulations:					
Volume % in entity			37.00		
3.	Northwestern Glaciated Plains (NWGL)	represents	13.43	area % of the AU	
Oil in Oil Accumulations:	minimum		mode		maximum
Volume % in entity			15.00		
Gas in Gas Accumulations:					
Volume % in entity			17.00		
4.	Northwestern Great Plains (NWGP)	represents	35.08	area % of the AU	
Oil in Oil Accumulations:	minimum		mode		maximum
Volume % in entity			39.00		
Gas in Gas Accumulations:					
Volume % in entity			38.00		
5.	Powder River Basin (PRBA)	represents	4.61	area % of the AU	
Oil in Oil Accumulations:	minimum		mode		maximum
Volume % in entity			1.00		
Gas in Gas Accumulations:					
Volume % in entity			0.00		
6.		represents		area % of the AU	
Oil in Oil Accumulations:	minimum		mode		maximum
Volume % in entity					
Gas in Gas Accumulations:					
Volume % in entity					

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7. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

8. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

9. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

10. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

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	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			

12. _____ represents _____ area % of the AU

	minimum	mode	maximum
Oil in Oil Accumulations: Volume % in entity			
Gas in Gas Accumulations: Volume % in entity			